FluWatch

Public Health Agency of Canada | Agence de la santé publique du Canada

July 1 to July 14, 2012 (Weeks 27 & 28)

Overall Influenza Summary

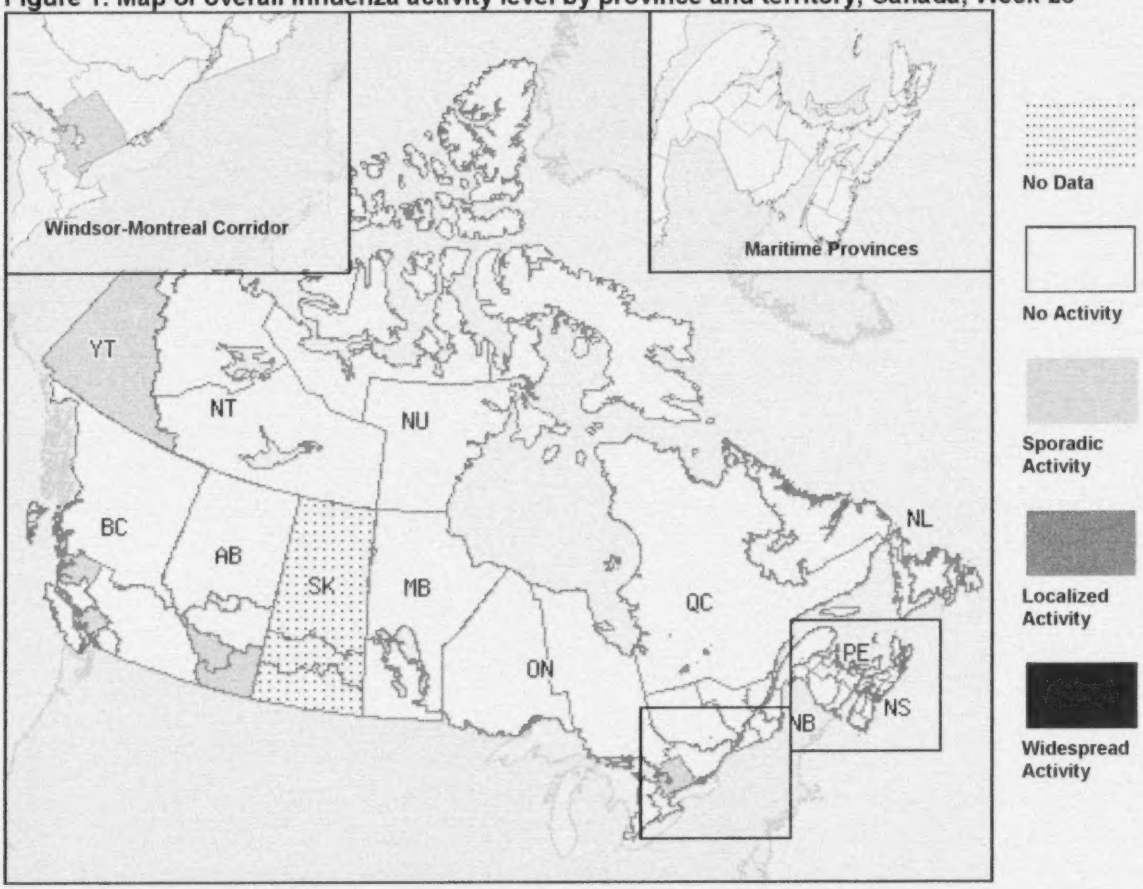
- Overall, influenza activity in Canada remains low and continues to decline.
- No outbreaks of influenza were reported.
- In weeks 27 and 28, a total of 15 laboratory detections of influenza were reported of which 53.3% were for influenza A viruses (62.5% - A(H3); 37.5% - unsubtyped) and 46.7% for influenza B viruses.
- Eight adult influenza-associated hospitalizations were reported over the two-week period (through aggregate surveillance)
- The ILI consultation rate in week 27 was above the expected level for this time of year and is most likely due to the circulation of other respiratory viruses.

NOTE: Bi-weekly reports will continue until October 12, 2012. However, laboratory detections reported through the RVDSS and influenza activity level maps will be updated weekly on the FluWatch website.

Influenza Activity (geographic spread) and Outbreaks

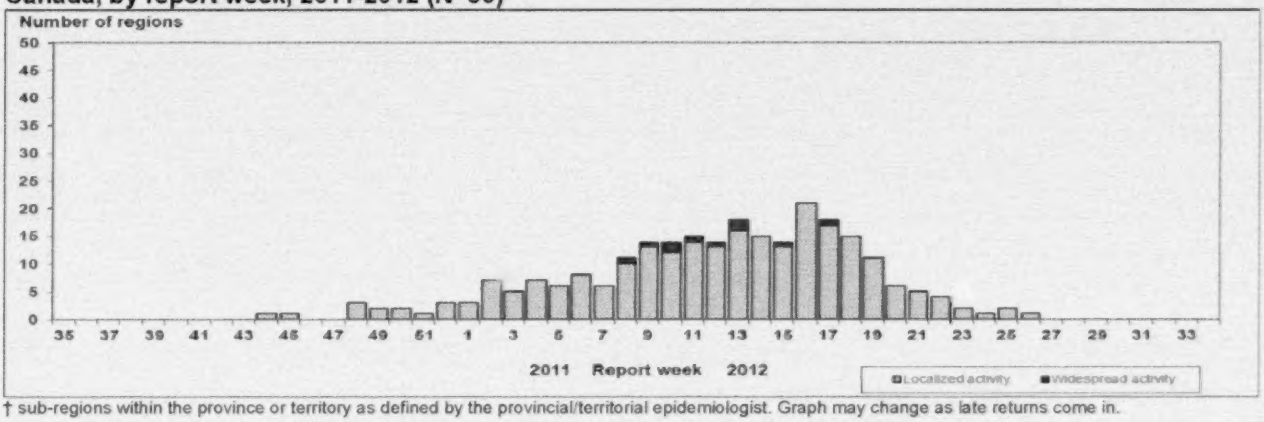
In week 27, 2 surveillance regions (within ON & AB) reported sporadic activity. In week 28, 6 regions (within BC, AB, ON & YT) reported sporadic influenza activity (see Figure 1). Note that no data was received from NU, SK & PEI, for week 27 and no data was received from SK & PEI for week 28. No new outbreaks of influenza or ILI were reported in weeks 27 and 28 (Figure 3).

Figure 1. Map of overall Influenza activity level by province and territory, Canada, Week 28



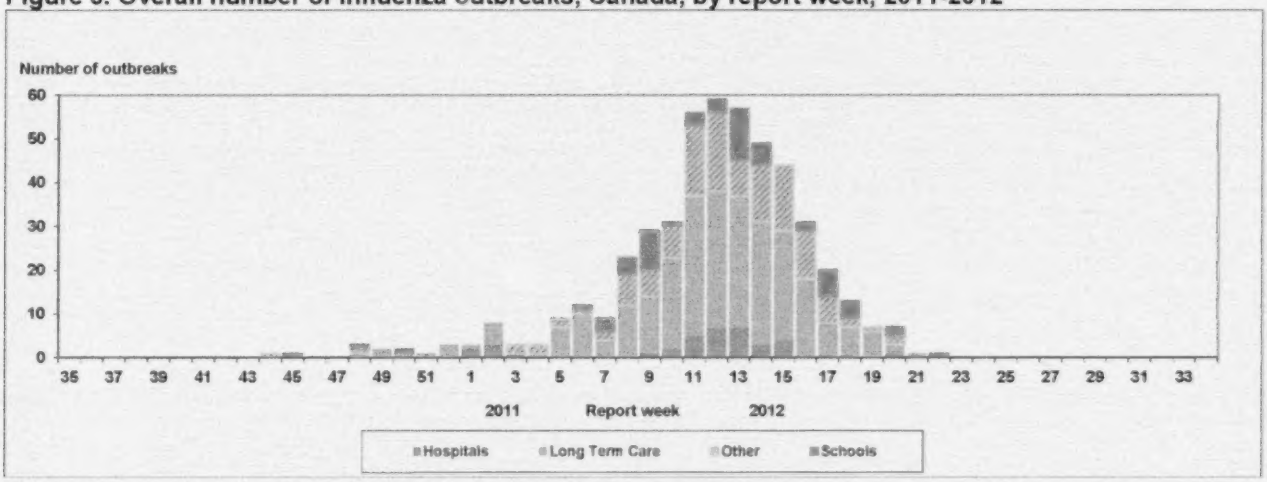
Note: Influenza activity levels, as represented on this map, are assigned and reported by Provincial and Territorial Ministries of Health, based on laboratory confirmations, sentinel ILI rates (see graphs and tables) and reported outbreaks. Please refer to detailed definitions on the last page. For areas where no data is reported, late reports from these provinces and territories will appear on the FluWatch website.

Figure 2. Number of influenza surveillance regions† reporting widespread or localized influenza activity, Canada, by report week, 2011-2012 (N=56)



† sub-regions within the province or territory as defined by the provincial/territorial epidemiologist. Graph may change as late returns come in.

Figure 3. Overall number of influenza outbreaks, Canada, by report week, 2011-2012



Influenza and Other Respiratory Virus Detections

The proportion of positive influenza tests continued to decline compared to previous weeks and was 0.7% in week 27 and 0.8% in week 28 (Figure 4 & 5). The proportion of positive detections for influenza A in week 27 was 0.2% and 0.6% in week 28. The proportion of positive detections for influenza B viruses was 0.4% for week 27 and 0.2% for week 28. In week 28 (Table 2) the largest proportion of influenza A cases were in those 22-44 years of age (2 cases) and the 2 positive influenza B cases were 0 to 19 years of age.

Cumulative to date of influenza virus detections by type/subtype is as follows: 46.5% influenza A (41.4% - A(H3); 18.8% - A(H1N1)pdm09; 39.9% - unsubtyped) and 53.5% influenza B (Table 1).

Detailed information on age and type/subtype were received on 10,258 cases to date this season (Table 2). The proportions of cases by age group are as follows: 20.5% were < 5 years; 18.2% were between 5-19 years; 22.0% were between 20-44 years; 15.6% were between 45-64 years of age; 23.5% were >= 65 years; and 0.2% with age unknown. The largest proportions of influenza A cases were between 20-44 years of age (25.6%) and those ≥ 65 years of age (25.3%). The largest proportions of influenza B cases were in those under 20 years of age (25%) and those ≥ 65 years of age (21.7%).

The percentage positive for rhinovirus detections was similar to previous weeks (20.0% & 19.0% in weeks 27 & 28 respectively); the percentage positive for rhinoviruses remains the highest (19.1%) compared to the other respiratory viruses. The percentage positive for parainfluenza viruses has remained similar since week 26 and is 7.2% in week 28. The percentage positive for the other respiratory viruses remained low in week 28: RSV-1.5%; adenovirus-2.0%; hMPV-0.8%; and coronavirus-0.4% (Figure 5). For more details, see the weekly Respiratory Virus Detections in Canada Report.

Table 1. Weekly & Cumulative numbers of positive influenza specimens by Provincial Laboratories, Canada, 2011-2012

Reporting provinces	July 1 to July 14, 2012						Cumulative (August 28, 2011 to July 14, 2012)					
	Influenza A					B	Influenza A					B
	A Total	A(H1)	A(H3)	Pand H1N1	A (UnS)*	Total	A Total	A(H1)	A(H3)	Pand H1N1	A (UnS)*	Total
BC	3	0	2	0	1	1	660	0	526	107	27	151
AB	1	0	1	0	0	4	1348	0	1035	259	54	310
SK	0	0	0	0	0	2	520	0	319	50	151	103
MB	1	0	0	0	1	0	77	0	12	9	56	244
ON	3	0	2	0	1	0	956	0	260	491	205	2759
QC	0	0	0	0	0	0	1853	0	74	97	1682	2248
NB	0	0	0	0	0	0	103	0	32	36	35	336
NS	0	0	0	0	0	0	16	0	11	1	4	93
PE	0	0	0	0	0	0	3	0	2	1	0	51
NL	0	0	0	0	0	0	118	0	68	10	40	212
Canada	**8**	**0**	**5**	**0**	**3**	**7**	**5654**	**0**	**2339**	**1061**	**2254**	**6507**

*Unsubtyped: The specimen was typed as influenza A, but no test for subtyping was performed. Specimens from NT, YT, and NU are sent to reference laboratories in other provinces. Note: Weekly data is based on week of positive lab detection. Cumulative data includes updates to previous weeks; due to reporting delays, the sum of weekly report totals do not add up to cumulative totals.

Table 2. Weekly & Cumulative numbers of positive influenza specimens by age groups reported through case-based laboratory reporting, Canada, 2011-2012*

Age groups	Weekly (July 8 to July 14, 2012)					Cumulative (Aug. 28, 2011 to July 14, 2012)				
	Influenza A				B	Influenza A				B
	A Total	Pandemic H1N1	A/H3N2	A unsubtyped	Total	A Total	Pandemic H1N1	A/H3N2	A unsubtyped	Total
<5	0	0	0	0	1	993	234	346	413	1106
5-19	0	0	0	0	1	568	86	287	195	1296
20-44	2	0	1	1	0	1299	292	476	531	957
45-64	1	0	1	0	0	904	186	315	403	701
65+	1	0	1	0	0	1281	70	770	441	1128
Unknown	0	0	0	0	0	22	6	15	1	3
Total	4	0	3	1	2	5067	874	2209	1984	5191

*Please note that this table reflects the number of specimens for which demographic information was reported. These represent a subset of all positive influenza cases reported. Delays in the reporting of data may cause data to change retrospectively.

Figure 4. Influenza tests reported and percentage of tests positive, Canada, by report week, 2011-2012

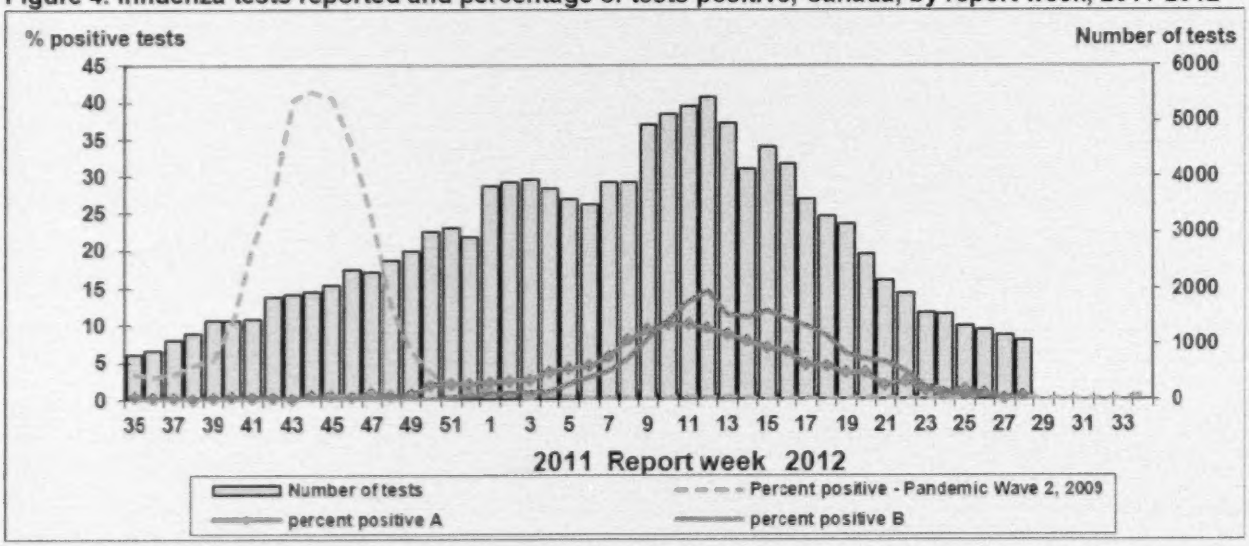
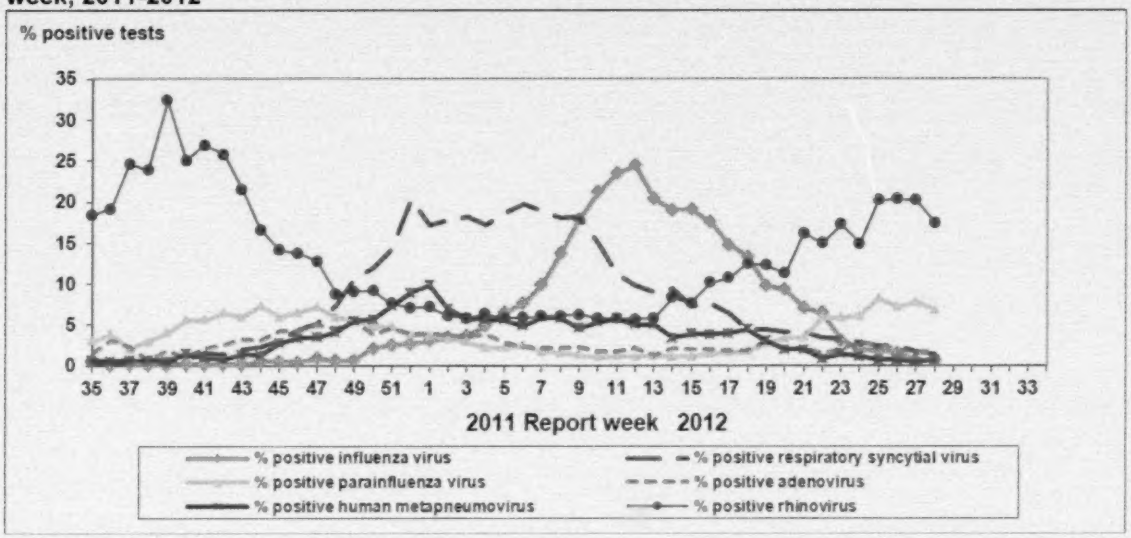


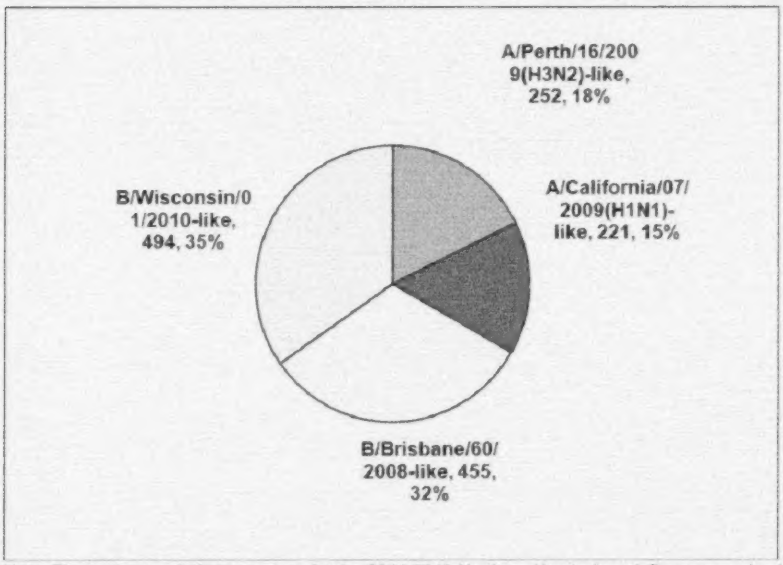
Figure 5. Percent positive influenza tests, compared to other respiratory viruses, Canada, by reporting week, 2011-2012



Influenza Strain Characterizations

Since the start of the season, the National Microbiology Laboratory (NML) has antigenically characterized 1,422 influenza viruses (252 A/H3N2, 221 A/H1N1 and 949 B). Of the 252 A/H3N2 viruses (from BC, AB, SK, MB, ON, QC, NB, NS, PEI & NT), 92.0% (231) were antigenically similar to A/Perth/16/2009 while 8.0% (20) viruses showed reduced titers with antiserum produced against A/Perth/16/2009. Of the 221 A/H1N1 viruses characterized (from BC, AB, SK, MB, ON, QC & NB), 97.7% (216) were antigenically similar to A/California/07/2009 and 2.3% (5) viruses tested showed reduced titer with antiserum produced against A/California/07/2009. Of the 949 influenza B viruses characterized, 47.9% (455) (from BC, AB, SK, MB, ON, QC, NB, NS & NL) were antigenically similar to the vaccine strain B/Brisbane/60/2008 (Victoria lineage); however 1 virus out of the 445 tested showed reduced titer with antiserum produced against B/Brisbane/60/2008. The remaining 52.1% (494) of the influenza B viruses (from BC, AB, SK, MB, ON, QC, NB, NS, NT & NU) were antigenically related to the reference virus B/Wisconsin/01/2010-like, which belongs to the Yamagata lineage. (Figure 6)

Figure 6. Influenza strain characterizations, Canada, 2011-2012, N = 1,422



Note: The recommended components for the 2011-2012 Northern Hemisphere influenza vaccine include: A/Perth/16/2009 (H3N2), A/California/7/2009 (H1N1) and B/Brisbane/60/2008.

Antiviral Resistance

Since the beginning of the season, NML has tested 1,457 influenza viruses for resistance to oseltamivir (by phenotypic assay and/or sequencing) and 1,456 for zanamivir (by phenotypic assay) and it was found that all viruses tested were susceptible to oseltamivir and zanamivir. A total of 783 influenza A viruses (429 H3N2 and 354 H1N1) were tested for amantadine resistance and all but 1 influenza A(H3N2) virus tested were resistant. (Table 3)

Table 3. Antiviral resistance by influenza virus type and subtype, Canada, 2011-2012

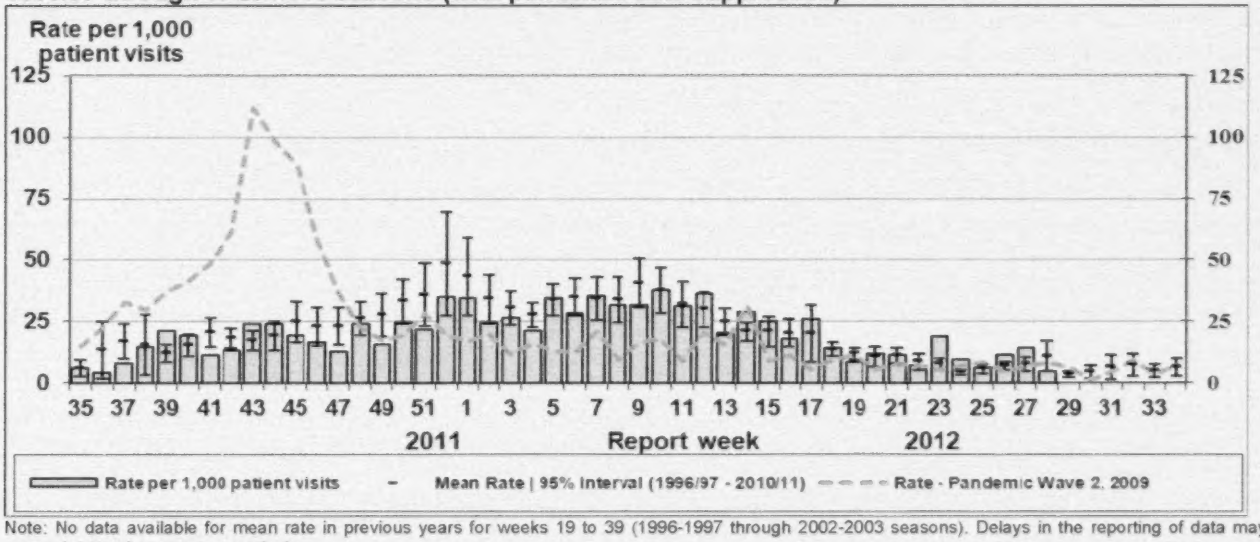
Virus type and subtype	Oseltamivir		Zanamivir		Amantadine	
	# tested	# resistant (%)	# tested	# resistant (%)	# tested	# resistant (%)
A (H3N2)	249	0	248	0	429	428 (99.8%)
A (H1N1)	256	0	256	0	354	354 (100%)
B	952	0	952	0	NA*	NA*
TOTAL	1457	0	1456	0	783	782 (99.9%)

* NA – not applicable

Influenza-like Illness (ILI) Consultation Rate

The national ILI consultation rate increased in week 27 to 14.2 ILI consultations per 1,000 patient visits and was above the expected level for this time of year, with the highest rates reported in MB & YT. The ILI rate decreased in week 28 to 4.5 per 1,000 visits, and was below the expected level for this time of year, with the highest rate reported in YT (Figure 7). In week 27, the ILI consultation rate was higher than the expected level for this time of year and is most likely due to the higher circulation of other respiratory viruses (i.e. rhinoviruses) than influenza viruses. The highest consultation rates by age group was observed in those between the ages of 5-19 years old in week 27 (27.3/1,000) and ≤4 years old in week 28 (28.2/1,000).

Figure 7. Influenza-like illness (ILI) consultation rates, Canada, by report week, 2011-2012 compared to 1996/97 through to 2010/11 seasons (with pandemic data suppressed)



Note: No data available for mean rate in previous years for weeks 19 to 39 (1996-1997 through 2002-2003 seasons). Delays in the reporting of data may cause data to change retrospectively.

Severe Respiratory Illness Surveillance

Paediatric Influenza Hospitalizations and Deaths (IMPACT)

In weeks 27 & 28 no new laboratory-confirmed influenza-associated paediatric (16 years of age and under) hospitalizations were reported through the Immunization Monitoring Program Active (IMPACT) network as they are no longer reporting until the start of the next influenza season.

The proportion of cases by age group is as follows: 14.4% among infants <6 months of age; 20.5% among children 6-23 months of age; 30.3% were between 2-4 years; 24.2% were between 5-9 years; and 10.7% were between 10-16 years. To date this season, 6 influenza-associated paediatric deaths have been reported through the IMPACT network; 83% (5) were associated with influenza B infection.

Note: The number of hospitalizations reported through IMPACT represents a subset of all influenza-associate paediatric hospitalizations in Canada; therefore, the number of hospitalizations included in this report may differ from those reported by other Provincial and Territorial Health Authorities.

Influenza Hospitalizations and Deaths (Aggregate Surveillance System)
In weeks 27 and 28, a total of 11 new laboratory-confirmed influenza-associated hospitalizations were reported of which 27.2% (3) were in those < 20 years of age and 72.7% (8) in those ≥ 20 years of age; 45.5% were due to influenza A and 54.6% due to influenza B. The hospitalizations were reported from AB (1), ON (10). One influenza A- associated ICU admission was reported (AB); 2 influenza associated deaths were reported (ON) and were between 45-64 years of age.

To date this season, 1,838 influenza-associated hospitalizations have been reported from 7 provinces (AB, SK, MB, ON, NS, PE & NL) and 2 territories (YT & NT); 39.0% (722) were in those < 20 years of age, 61.0% (1,129) in those ≥ 20 years of age, and 0.1% (1) of unknown age. The largest proportion of cases was observed in those ≥ 65 years of age (33.5%). Influenza B (57.3%) continues to be the predominant influenza type among hospitalized cases compared to influenza A; of the influenza A hospitalizations where subtype was available, influenza A(H3N2) predominated (60.2%). There have been 81 hospitalizations requiring ICU admission reported (from AB, SK, MB, NS & NL) of which 28.6% were in those < 20 years of age and 70.4% were in those ≥ 20 years of age. To date this season, 103 influenza-associated deaths have been reported (from AB, SK, MB, ON & NS) of which 1.0% were of unknown age, 6.8 % were among those < 20 years of age and 92.2% in those ≥ 20 years of age. Of the adult deaths, 74.8 % were in those ≥ 65 years of age.

Note: Some of the hospitalizations and deaths reported in those ≤ 16 years of age may also have been reported in the IMPACT summary above if the hospitalization or death occurred in one of the 12 IMPACT hospitals. The reason for hospitalization or cause of death does not have to be attributable to influenza in order to be reported. Influenza-associated hospitalizations are not reported to PHAC by the following Provinces: BC, & QC. Only hospitalizations that require intensive medical care are reported by SK. ICU admissions are not reported in ON.

International Influenza Updates

WHO: The influenza season is largely finished in the temperate countries of the northern hemisphere. In the tropical countries of the Americas, Some active transmission of influenza was reported in Central America, the Caribbean, and tropical South America. In Sub-Saharan Africa, limited available data indicate very low level or no influenza activity in most countries. Most countries of tropical Asia reported influenza activity at a low or undetectable level. The influenza season has commenced in most temperate countries of the southern hemisphere. Influenza A(H3N2) viruses were the most commonly reported type/sub-type in recent weeks in the Southern Hemisphere temperate region in Chile, South Africa, and Australia; however, significant numbers of influenza type B were also reported in South Africa and to a lesser extent, Australia. Very few influenza A(H1N1)pdm09 viruses have been reported with exception of Paraguay and some countries in Central and tropical South America. *World Health Organization influenza update*

United States: The proportion of tests positive for influenza viruses declined compared to the previous week and was 4.5% in week 27. Of the positive influenza detections reported during week 27, the majority (69.2%) were positive for influenza B viruses. Of the influenza A viruses for which subtype information was available, all were influenza A(H3) viruses. All other indicators of influenza activity remained low. *Centers for Disease Control and Prevention seasonal influenza report*

Europe: In week 28, influenza activity continues to be at out-of-season levels throughout the European Region. None of the 32 samples collected from sentinel sources was positive for influenza virus; 7 samples from non-sentinel sources were influenza positive, indicating low influenza activity in the Region. Consultation rates for influenza-like illness (ILI) and acute respiratory infection (ARI) are now at low levels in all countries in the Region.
EuroFlu weekly electronic bulletin

Human Avian Influenza Updates

A new case of human avian influenza A/H5N1 infection was reported by the WHO on July 6, 2012 from Indonesia. The case was an 8 year-old female from West Java Province. She developed fever on June 18, then travelled on vacation the following day to Singapore where she saw a private physician who diagnosed her with pharyngitis. The case returned to Indonesia on June 24 and was still feeling unwell. The case was taken to a local hospital; however, her condition deteriorated. She was transferred to intensive care, but died on July 3. The case had contact with poultry when she went to the market with her father to buy live chickens and she was present when the chicken was culled.
WHO Avian influenza situation updates

FluWatch reports include data and information from the following sources: laboratory reports of positive influenza tests in Canada (National Microbiology Laboratory), sentinel physician reporting of influenza-like illness (ILI), provincial/territorial assessment of influenza activity based on various indicators, including laboratory surveillance, ILI reporting, and outbreaks, influenza-associated paediatric and adult hospitalizations, antiviral sales in Canada, and WHO and other international reports of influenza activity.

Abbreviations: Newfoundland/Labrador (NL), Prince Edward Island (PE), New Brunswick (NB), Nova Scotia (NS), Quebec (QC), Ontario (ON), Manitoba (MB), Saskatchewan (SK), Alberta (AB), British Columbia (BC), Yukon (YT), Northwest Territories (NT), Nunavut (NU).

ILI definition for the 2011-2012 season

ILI in the general population: Acute onset of respiratory illness with fever and cough and with one or more of the following - sore throat, arthralgia, myalgia, or prostration which is likely due to influenza. In children under 5, gastrointestinal symptoms may also be present. In patients under 5 or 65 and older, fever may not be prominent.

Definitions of ILI/Influenza outbreaks for the 2011-2012 season

Schools: Greater than 10% absenteeism (or absenteeism that is higher (e.g. >5-10%) than expected level as determined by school or public health authority) which is likely due to ILI. Note: it is recommended that ILI school outbreaks be laboratory confirmed at the beginning of influenza season as it may be the first indication of community transmission in an area.

Hospitals and residential institutions: two or more cases of ILI within a seven-day period, including at least one laboratory confirmed case. Institutional outbreaks should be reported within 24 hours of identification. Residential institutions include but not limited to long-term care facilities (LTCF) and prisons.

Other settings: two or more cases of ILI within a seven-day period, including at least one laboratory confirmed case; i.e. workplace, closed communities.

Influenza Activity Levels Definition for the 2011-2012 season

Influenza Regional Activity levels are defined as:

1 = No activity: no laboratory-confirmed influenza detections in the reporting week, however, sporadically occurring ILI may be reported

2 = Sporadic: sporadically occurring ILI and lab confirmed influenza detection(s) with **no outbreaks** detected within the influenza surveillance region†

3 = Localized: (1) evidence of increased ILI* and
(2) lab confirmed influenza detection(s) together with
(3) **outbreaks** in schools, hospitals, residential institutions and/or other types of facilities occurring in **less than 50% of the influenza surveillance region**†

4 = Widespread: (1) evidence of increased ILI* and
(2) lab confirmed influenza detection(s) together with
(3) **outbreaks** in schools, hospitals, residential institutions and/or other types of facilities occurring **in greater than or equal to 50% of the influenza surveillance region**†

Note: ILI data may be reported through sentinel physicians, emergency room visits or health line telephone calls.

* More than just sporadic as determined by the provincial/territorial epidemiologist.

† Influenza surveillance regions within the province or territory as defined by the provincial/territorial epidemiologist.

We would like to thank all the Fluwatch surveillance partners who are participating in this year's influenza surveillance program.

This report is available on the Public Health Agency website at the following address: http://www.phac-aspc.gc.ca/fluwatch/index.html. Ce rapport est disponible dans les deux langues officielles. Pour en recevoir un exemplaire dans l'autre langue chaque semaine, veuillez communiquer avec Estelle Arseneault, Division de l'immunisation et des infections respiratoires au (613) 998-8862.